



Ø BEAT



COLO. SPRINGS,
COLORADO

JUNE 1982

JUNE 26-27 IS FIELD DAY '82

FIELD DAY 1982 —

Field Day is fast approaching again and plans are under way for one of the best ones ever. The dates are June 26 and 27 with many of us starting on the 25th with set-up and fun. As in the past our site will be near Woodland Park on the Rampart Range Road. Location to be the same as last year (see map). The spot is very nice, large, well situated and has lots of room for stations as well as campers.

Plans are to operate 3A category with an additional novice station. We will have H.F. phone, H.F. C.W. and VHF stations in operation with the ability to switch from VHF to HF during slack periods. We are again going to do some QRP work with solar panels and also try for a few satellite QSO's.

F.D. is probably one of the most fun and worthwhile activities of hamming and I urge you all to get involved in some way. The easiest thing to do is show up and enjoy. You could also sit down and do some operating and/or logging (easy this year with H.P. computers). Maybe you would like to get involved with some special activity — set-up, logs, generators, stations, food (Sunday a.m.), antennas or ? If so, let me know at the meeting and I'll steer you to the right person. If you have equipment or transportation to supply we can use that too. Everyone can pitch in and make it better and easier for us all.

A few items I want to stress —

1. If you want to operate, let it be known! Sign up sheets available to be sure of a time.
2. There is no required expertise — your speed and ability are O.K.!

Please help in some way! Join the fun.

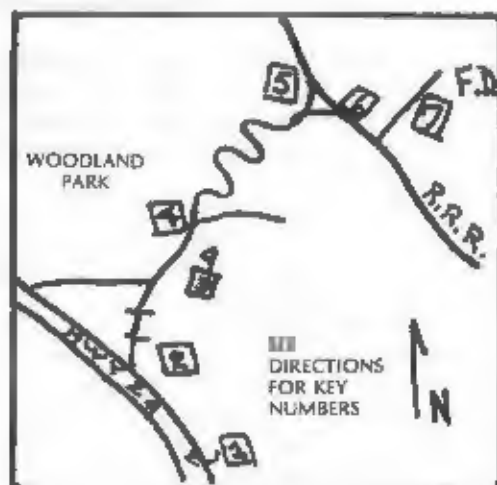
4. F.D. is not closed. Anyone who wants to come is welcome. Ask that friend who has expressed an interest in ham radio to come with you.
5. Seek out other hams to join us.
6. Make a special effort to get novices to come.
7. Bring the family for a nice weekend in the woods.

I especially want to thank those who have come forward with offers to help and equipment. It makes my job so much more enjoyable and a whole bunch easier. I'm looking forward to the best F.D. ever for P.P.R.A.A.

Hope to see you all there with many guests. Let's have a ball.

—73—

Dave, NØDV



FIELD DAY DIRECTIONS:

1. Take Hwy. 24 west to Woodland Park.
2. Turn right at sign "Sheriff Substation" as you are coming into town (just after Paradise Ranch).
3. Follow this road past school.
4. Straight ahead until Y in road; bear left.
5. Turn right (south) towards Colorado Springs.
6. Approximately 0.1 mile — Field Day site on left, east side, or Rampart Range Road.

P.P.R.A.A. DIRECTORS

PRESIDENT	Al Bailey ADØZ 2715 Alteza Ln. 80917	597-8514
V. PRESIDENT	*Karl White K4DQ 4460 Nonchalant Cir. 80917	597-4805
SECRETARY	*Greg Utterback KAØFOZ 1545 Laurette 80909	597-4351
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Board Member	*Tom Weatherly ADØO 2010 N. Carlton 80909	475-0192
Board Member	*Mark Richardson KAOJXW 24 N. Union 80909	473-1799

(*Two-year board terms began October 1981)

ZERO BEAT is published monthly in the interest of the members of the Pikes Peak Radio Amateur Association, Inc., Colorado Springs, Colorado. Permission is given to reprint articles or excerpts provided credit is given. Deadline for submission of articles is the 21st of the month. Classifieds accepted anytime.

The Pikes Peak Radio Amateur Association meets on the second Wednesday of every month at the First United Methodist Church, 420 N. Nevada, at 7:30 p.m. All amateurs and interested parties are invited to attend.

Editor: Don Lohse KBØKQ, 1410 E. LaSalle, Colorado Springs, CO 80907 635-7469

MEETING MINUTES

The May meeting of the Pikes Peak Radio Amateur's Association was called to order at 7:30 p.m., Wednesday, May 12 by president Al Bailey, ADØZ. Introductions of members and guests were made.

Several items were discussed during the business meeting. A sign up sheet for workers needed at Field Day was presented by Dave, NØDV. Field Day is the last weekend in June (June 26, 27). The four stations we will have set up can use your help in preparations and operating.

After a considerable hiatus, our traveling award, Hammy, was co-presented to Jake, NØCYR, Rosie, WAØMNL, and Duane, N7BTE for their tireless efforts at the Swapfest.

There was some discussion of amateur participation in the recent Walk for Mankind. This year's event was confined to the Palmer Park area and things went fairly smoothly. This was the first year I can remember that it didn't rain (or snow).

Coming events discussed were Springspre and the possible need next year for amateur's at Sportfest. Ken, WØTGL, was selected to notify the Sports Festival folks of our willingness to participate.

The business meeting ended with a break at 8:30. After coffee and visiting, we were treated to an excellent program on power line safety by Jim Kervinch of the Utilities Dept. Jim's live demos and talk about high voltage were very stimulating and thought provoking.

The meeting was adjourned at 9:55 with a reminder about the May 17 board meeting and the Field Day organizing meeting.

Respectfully submitted,
Greg, KAØFOZ

NOTE: Articles concerning technical information are printed in Zero Beat for the consideration of readers. Zero Beat does not vouch for the accuracy of data or applications of that data.

ARRL BULLETIN

At an open Agenda meeting on April 1, 1982, the FCC eliminated two sections of the Amateur Regulations, as part of an ongoing review of rules to prune out those which are no longer necessary. Section 97.71 required an adequately filtered DC plate power supply for transmitters operating below 144 MHz. Section 97.74 required a means of measuring frequency independent of the transmitter itself. Cancellation of these two rules represents a change in regulatory philosophy from how to observe the rules to what the result should be. Other rules still in place require that an Amateur signal be clean, and that it be in band.

FOR SALE: Heathkit HW 202 10 Watt 2 Meter TRANSCEIVER plus GLB Model 400B Channelizer. Full 144-148 MC coverage in 10KC or 5 KC steps. Set-up with TT Pad included. \$100.00. Bill Lange — W1THA, 471-2234

Typesetting courtesy Letter Setters

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BOARD MINUTES

The board meeting of the Pikes Peak Radio Amateur Association was called to order at 8:10 p.m., May 17, 1982. Present were Al, ADØZ; Les, KCØNC; Karl, K4DQ; reg, KAØFOZ; and Mark, KAØJXW.

Greg passed a list of members both active or dropped. Al moved — Greg seconded — to authorize Doug to purchase 100 stamps to mail the list to active members. The motion carried.

Karl was unable to obtain reservations at the Black Forest picnic ground. Greg moved — Mark seconded — to have Karl try to obtain pavillion reservations at Bear Creek Park. The motion carried.

Al indicated he would not be present for the June meeting. Karl will officiate. The program is scheduled to be on the storm season and attempts are being made to secure Herb Moore of the National Weather Service.

Plans for Field Day appear to be going smoothly. More people signed up to help at the last meeting.

Purchases with the \$250 gift from the CMTRA (Colorado Motorcycle and Trail Riders Association) were discussed. Included were possibilities of a Ringo Ranger or a portable repeater.

The next fox hunt is to be June 6 with Les hiding. Participants will meet at Godfathers Pizza on North Fillmore at 12:30.

There being no further business, the meeting was adjourned at 9:45 p.m. The next meeting will be Greg's KAØFOZ, 7:30 p.m., June 14th.

Respectfully submitted,

Mark, KAØJXW

FOR SALE: Swan 400 with AC/DC power supply and mobile VFO. Recent factory reconditioned. \$200. Regency HR 212 2M transceiver \$40. Dave NØDV 473-0293.

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SWAPFEST

The Rocky Mountain Rendezvous Swapfest sponsored by the Mountain Amateur Radio Club will be held on July 17 & 18. Location is the Red Rocks campground 3 miles north of Woodland Park on Highway 67. Selling spot is \$3.00 for 1 or 2 days. Buyers are free. Come prepared for summer mountain weather. Camping is encouraged. Spaces on first-come basis. Water and latrines are available. For further information contact NØBXI Tony Kovacevic 687-3954 or NØCMD Joe Tafoya 687-3641.

TRANSMITTER HUNT

When: 12:30 p.m. June 6th

Where: Meet at Godfather's Pizza (Fillmore St.) The hunt will start at 1:00 p.m. and if all goes well, we will meet back at the start for pizza and drinks.

I hear there are some new D.F. antennas under construction, and hope to see some of these new double dummies at work. So get your gear together (check it out before you start to hunt) and join the fun. Even if you have no equipment, come out and see what happens. Warning: hidden transmitter hunting is very contagious.

The rules are simple:

- 1) Lowest mileage is the winner.
- 2) The fox must hide within El Paso County (excluding Manitou Springs) on public property.
- 3) The hidden transmitter location must be accessible by standard 2-wheel drive auto.
- 4) If a tie in mileage should occur, then the first to arrive will be the winner — speeding ticket will be cause for disqualification.

Hope to see you late with lots of miles.

Les, KCØNC

TECHNICAL FACTS OF LIFE

Although vacuum tubes and transistors both can be made to amplify RF power, there are some fundamental differences in how this is accomplished. We are all familiar with vacuum tube principles, but not with those of transistors. A better understanding of what we can expect under various operating conditions will aid in recognizing correct or incorrect performance.

Broadband vs Resonant Tanks — Almost all tube circuits are resonant tanks in the plate circuit. In class AB operation, these two approaches act similarly without drive being applied. The idle current is relatively low and within the device dissipation rating, even with load impedance variations from open to short circuit.

However, with drive applied, the two act very differently. In the case of tubes, the dissipation within the tube depends on both the tuning of the tank and the load applied. If the tank is resonated and the load is very light, the internal power dissipated is quite small as indicated by the null which reduces the plate current almost to the level with no drive. Out of resonance, the plate current, and hence dissipation, increases rapidly and may damage the tube from overheating. In resonance, as the load is increased, the null becomes more shallow at a higher plate current as a result of the power being delivered to the load. As the tank is tuned to resonance, the load impedance which is usually on the order of 50 ohms is transformed to a relatively high impedance of several thousand ohms to match the plate circuit impedance. Small load reactive components — either capacitive or inductive — can usually be balanced out in the tank resonating function.

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With transistors, drive applied and no load, there is no resonant high impedance to limit the collector current, and so power is poured into the circuit (much as the out-of-resonance tank condition). Since there is no load power, all has to be dissipated in the transistor. So even with no load, the power supply circuit breaker may trip. The broad-band transformer system used with transistors transforms the 50 ohm load impedance not higher, but much lower (in the order of 4 or 5 ohms) to match the transistor output impedance. Since this transformation is fixed in design, any reactive component in the load impedance is applied in a transformed way to the collector circuit. Certain reactances at this point, especially inductive, give rise to parasitic oscillation. To correct for this, the antenna impedance should be changed to remove this reactance, or a matching network should be inserted between antenna and transceiver. It is important to remember that any antenna changes impedance with frequency, so that one that resonates well at one end of the band may well cause oscillations to trip the circuit breaker on the other end. If entire band operation is desired, especially on the lower bands, the adjustable matching network would be the better choice, rather than to try to make the antenna behave over the entire band on a cut-and-try basis.

A final point to bring out regarding broadband vs tank systems is that there is a limit to the amount of current you can draw from an emitting filament, and this saturation current will limit the amount of power drawn from the supply. In the case of transistors, where the collector internal impedance is only a fraction of an ohm, extremely high currents can be demanded of the power supply, especially with mismatched loads well below 50 ohms.

Karl White, K4DQ

The above was extracted from the TEN-TEC Owners Manual.

FOR SALE: SBE 34 (80-15 SSB), SBE SB2-LA Linear Amplifier, Swan Cygnet 300B, Knight T-60 (AM & CV transmitter 80-6), Clegg 22'er (AM only), Heath SB 61L Monitor Scope, 2 muffin fans, 45 year collection of QST 1/1935-12/1979, CQ Magazines back to 1945. All rigs in excellent condition. Rose Ebel KA9EMV, 599-8842.

MILEY'S RADIO

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Prices on new equipment listed includes shipping to your door.

NEW HF EQUIPMENT

ew Kenwood TS 530S \$659.
EA MT-1 Code Trainer \$90.
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This month's special: ICOM 730 HF XCVR
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Kenwood TR-7850 40W \$369.
Kenwood TR-7730 mini 25W w/TTM 279.
New Santec 144 2 M HT \$279.
New Santec 440 MHz HT \$329.
Icom 25A mini size 2M w/TT mic Reg. \$369 Now \$299.
Icom 2AT HT w/ wall chgr, TT pad, nicads, duck Reg. \$269 Now \$235.
Icom 2A same as above w/o TT pad Reg. \$239 Now \$214.
Extra Icom batteries, chrgs. & etc. In stock.
Azden PCS 3000 w/ TT pad \$275.
Azden PCS 2800 10M FM \$269.
KDK 2025 25W w/ TT mic \$249.
New Azden PCS 300 HT \$288.

USED EQUIPMENT

Wilson MK 4 6 ch HT, wall chgr, 1 xtra battery, TT pad \$125.
(2) Wilson 1402 5M HT w/ desk charger \$125.
Heath 2 meter linear \$30.
Collins 7553B Rcvr. \$450.
Collins 3251 Trans. \$250.
Collins 516 F2 power supply \$135.
Transceives as a pair—all 3 for \$750—mint condition.
Drake R4A, T4X, M5-4 p/s & spkr. Transceives as pair & ETEK FR-4
digital readout & counter. All cables, extra set of all tubes including
finals. All for \$575.
7 xtra crystals with R4A
R4A separate \$225.
T4X separate \$225.
M54 power supply & speaker
FR4 Digital Readout \$150.

Hallcrafters SR 150 80-10 M trans. CW-SSB w/matching
power supply & speaker. New finals & driver \$250.
Eico 730 CW-SSB 80-10 trans. w/matching power supply
and speaker. Works great, nice cond. \$150.
Yaesu YQ 101 Monitorscope \$150.
Heathkit HD 15 phone patch \$25.
Complete Galaxy GT550 station. 550 w pep. 80-10 m CW-SSB
trans. VOX, crystal calibrator, crystal sw. box,
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supply \$395.
39 ft. used Rohn 25G tower, includes 9' top section \$135.

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AEA Isopole 144. List \$49.95 Sale \$39.95

Ringo Ranger ARX 2 w/o radials \$36.

Mini Products HQ1 Mini Quad. 6-10-15-20.

Reg. \$159.50-sale \$140.

Cramped for space for 80 & 40 m antenna? Try the new Isotron 80 & 40—made in
Colorado. 80 m is 54"x16"x18" only 7 lbs. 40 m 31"x16"x18" only 4 lbs. Both can
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when you can't have outdoor antennas. 80 m-\$59.95 40 m-\$49.95. Intro prices
for both 40 & 80-\$79.95

Free with \$10.00 or more purchase 1 ARRL Mini Log.

With the coming weather season, estimating winds around thunderstorms is an important task. The Beaufort Wind Scale is helpful in this, and might be worth tearing out and putting in your purse or wallet.

BEAUFORT WIND SCALE

BEAUFORT NUMBER	VELOCITY in MPH	DESCRIPTION	SPECIFICATION
0	0—1	CALM	SMOKE RISES VERTICALLY
1	1—3	LIGHT AIR	WIND DIRECTION SHOWN BY SMOKE DRIFT
2	4—7	LIGHT BREEZE	WIND FELT ON FACE, LEAVES RUSTLE
3	8—12	GENTLE BREEZE	LEAVES AND TWIGS IN CONSTANT MOTION WIND EXTENDS A LIGHT FLAG
4	13—18	MOD. BREEZE	DUST AND LOOSE PAPER ALSO SMALL BRANCHES MOVE
5	19—24	FRESH BREEZE	SMALL TREES IN LEAF BEGIN TO SWAY
6	25—31	STRONG BREEZE	LARGE BRANCHES IN MOTION
7	32—38	MODERATE GALE	TWIGS BREAK OFF TREES, PROGRESS GENERALLY IMPEDED
8	39—46	FRESH GALE	SLIGHT STRUCTURAL DAMAGE OCCURS
9	42—54	STRONG GALE	SLIGHT STRUCTURAL DAMAGE OCCURS
10	55—63	WHOLE GALE	TREES UPROOTED, CONSIDERABLE STRUCTURAL DAMAGE
11	64—72	STORM	WIDESPREAD DAMAGE, TRAVEL VERY DANGEROUS, LARGE TRUCKS AND CARS
12	73—UP	HURRICANE	OVERTURNED, DISASTER AREA DEFINED

This scale was made for straight wind readings. Gusts of wind readings falling to straight winds can be read fairly accurately by combining sets of above.

MEETING NOTICE

The June meeting of the Pikes Peak Radio Amateur Association will be held on June 9 at 7:30 p.m. at the First United Methodist Church located at the corner of Nevada and Boulder streets. The program will be on identifying and dealing with severe weather. All members and other interested parties are invited to attend.

ARTICLE SOLICITATION

Zero Beat is always looking for articles to print. This newsletter is the most visible part of our organization and should reflect the interests of the membership. If you have a good mod for a rig, a "the way it was" story, computer program, project or whatever, write it up and send it to the editor. Help make Zero Beat a viable, dynamic publication!!



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